

Appl. No. 10/523,780

Amendment dated December 21, 2007

Reply to Office Action of September 25, 2007

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) An air conditioner comprising:
a plurality of utilization units operably connected in parallel configured and arranged for heat exchanging; and
a vapor compression type refrigerant circuit including a high pressure unit with a heat exchanger, said vapor compression type refrigerant circuit being operably coupled to said plurality of utilization units and configured and arranged for flowing a high-pressure refrigerant within said high pressure unit at a maximum working pressure of at least 3.3 MPa or higher and a low pressure unit configured and arranged for flowing only a low-pressure refrigerant within said low pressure unit at a maximum working pressure of less no greater than 3.3 MPa,
said low pressure unit including an accumulator being configured and arranged for pooling the low pressure refrigerant that circulates inside said vapor compression type refrigerant circuit as a liquid refrigerant, and
said refrigerant that flows through said low pressure unit and said high pressure unit being one of a pseudo azeotropic refrigerant, an azeotropic refrigerant, and a single refrigerant having saturation pressure characteristics higher than the saturation pressure characteristics for R407C.

2. (Currently Amended) An air conditioner comprising:

a compressor configured and arranged to compress low-pressure gas refrigerant and discharge high-pressure gas refrigerant, said compressor having an inlet side and a discharge side;

a heat source side heat exchanger configured and arranged to operate as at least one of an evaporator and a condenser, said heat source side heat exchanger having a gas side;

a plurality of utilization side heat exchangers mutually connected in parallel to one another and further connected to said heat source side heat exchanger and having a gas side, each of the utilization side heat exchangers being configured and arranged to operate as at least one of a condenser and an evaporator;

expansion mechanisms connected between said utilization side heat exchangers and said heat source side heat exchanger;

a switching mechanism configured and arranged for switching between a state in which said gas side of said heat source side heat exchanger is connected to said discharge side of said compressor, said inlet side of said compressor is connected to said gas side of said utilization side heat exchangers, and low-pressure gas refrigerant is sucked into said compressor, and a state in which said gas side of said heat source side heat exchanger is connected to said inlet side of said compressor, said discharge side of said compressor is connected to said gas side of said utilization side heat exchangers, and high-pressure gas refrigerant flows to said utilization side heat exchangers; and

an accumulator connected between said switching mechanism and said inlet side of said compressor, said accumulator being configured and arranged for pooling low-pressure refrigerant as a liquid refrigerant,

said accumulator, said switching mechanism and said inlet side of said compressor forming a low pressure unit, which is configured and arranged for flowing only low-pressure refrigerant at a maximum working pressure of less no more than 3.3 MPa,

said compressor, said heat source side heat exchanger, said plurality of utilization side heat exchangers, and said switching mechanism forming a high pressure unit, which is configured and arranged for flowing high-pressure refrigerant at a maximum working pressure of at least 3.3 MPa ~~or higher~~, and

said refrigerant that flows through said low pressure unit and said high pressure unit being one of a pseudo azeotropic refrigerant, an azeotropic refrigerant, and a single refrigerant having saturation pressure characteristics higher than the saturation pressure characteristics for R407C.

3. (Previously Presented) The air conditioner as recited in claim 2, further comprising:

a heat source side temperature detector configured and arranged to detect a refrigerant temperature on a liquid side of said heat source side heat exchanger;

a utilization side temperature detector configured and arranged to detect a refrigerant temperature on a liquid side of each of said utilization side heat exchangers; and

a high pressure pressure detector configured and arranged to detect a refrigerant pressure on said discharge side of said compressor,

based on detected values of said refrigerant temperature and said refrigerant pressure detected by said heat source side temperature detector, said utilization side temperature detectors; and said high pressure pressure detector, each of said expansion mechanisms

Appl. No. 10/523,780

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having an opening that is regulated so that said liquid refrigerant on said liquid side of said heat source side heat exchanger reaches a prescribed subcooled state when said heat source side heat exchanger functions as a condenser, said opening of each said expansion mechanisms is regulated so that said liquid refrigerant on said liquid side of each said utilization side heat exchanger reaches a prescribed subcooled state when said utilization side heat exchanger functions as the condenser.

4. (Previously Presented) The air conditioner as recited in claim 1, wherein said refrigerant that flows through said low pressure unit and said high pressure unit includes R32.

5. (Previously Presented) The air conditioner as recited in claim 1, wherein said refrigerant that flows through said low pressure unit and said high pressure unit includes R410A.

6. (Previously Presented) The air conditioner as recited in claim 2, wherein said refrigerant that flows through said low pressure unit and said high pressure unit includes R32.

7. (Previously Presented) The air conditioner as recited in claim 3, wherein said refrigerant that flows through said low pressure unit and said high pressure unit includes R32.

Appl. No. 10/523,780

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8. (Previously Presented) The air conditioner as recited in claim 2, wherein said refrigerant that flows through said low pressure unit and said high pressure unit includes R410A.

9. (Previously Presented) The air conditioner as recited in claim 3, wherein said refrigerant that flows through said low pressure unit and said high pressure unit includes R410A.